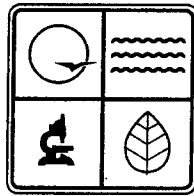


STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI AIR CONSERVATION COMMISSION



PERMIT BOOK

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: **092006-003** Project Number: **2006-07-040**
Owner: **Ameren Corporation**
Owner's Address: **1901 Chouteau Avenue, St. Louis, MO 63103**
Installation Name: **AmerenUE Sioux Plant**
Installation Address: **8501 North State Route 94, West Alton, MO 63386**
Location Information: **St. Charles County, S17, T48N, R6E**

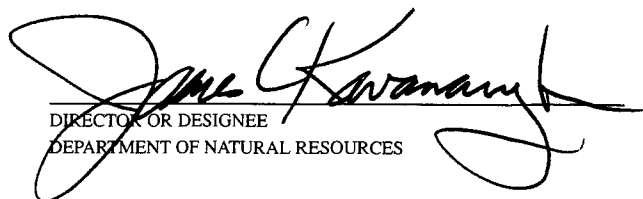
Application for Authority to Construct was made for:

Construction of a wet flue gas desulfurization system, limestone material handling system, and a new effluent stack. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

- ☐ Standard Conditions (on reverse) are applicable to this permit.
- ☒ Standard Conditions (on reverse) and Special Conditions (listed as attachments starting on page 2) are applicable to this permit.

SEP 13 2006

EFFECTIVE DATE


DIRECTOR OR DESIGNEE
DEPARTMENT OF NATURAL RESOURCES

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available not more than 60 days but at least 30 days in advance of this date. Also, you must notify the Department of Natural Resources Regional Office responsible for the area within which you are located within 15 days after the actual start up of this (these) air contaminant source(s).

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed Special Conditions as provided in RSMo 643.075. If you choose to appeal, the Air Pollution Control Program must receive your written declaration within 30 days of receipt of this permit.

If you choose not to appeal, this certificate, the project review, your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Department of Natural Resources has established the Outreach and Assistance Center to help in completing future applications or fielding complaints about the permitting process. You are invited to contact them at 1-800-361-4827 or (573) 526-6627, or in writing addressed to Outreach and Assistance Center, P.O. Box 176, Jefferson City, MO 65102-0176.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention Construction Permit Unit.

2006-07-040

Ameren Corporation

1901 Chouteau Avenue, St. Louis, MO 63103

AmerenUE Sioux Plant

8501 North State Route 94, West Alton, MO 63386

St. Charles County, S17, T48N, R6E

Construction of a wet flue gas desulfurization system, limestone material handling system, and a new effluent stack. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

Page No.	3
Permit No.	
Project No.	2006-07-040

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."

AmerenUE Sioux Plant
St. Charles County, S17, T48N, R6E

1. Control Devices

- A. Fog type dust suppression must be in use on the following transfer points at all times when any of the equipment associated with these transfer points are in operation. The fog type dust suppression equipment shall be operated and maintained in accordance with manufacturer's specification.

Table 1: Transfer Points with Dust Suppression.

Emission Point ID	Emission Point Description
TP-1	Transfer of limestone from truck to inground hopper
TP-2	Transfer of limestone from truck hopper to belt feeder LHBF-1
TP-3	Transfer of limestone from belt feeder LHBF-1 to stackout conveyor LH-1
TP-10	Transfer of limestone reclaim hopper to belt feeder LHBF-2
TP-11	Transfer of limestone reclaim hopper to belt feeder LHBF-3
TP-12	Transfer of limestone from belt feeders LHBF-2 and LHBF-3 to stackout conveyor LH-2
TP-13	Transfer of limestone from stackout conveyor LH-2 to reversible conveyor LH-3
TP-14	Transfer of limestone from reversible conveyor LH-3 to limestone day silo
TP-15	Transfer of limestone from reversible conveyor LH-3 to limestone day silo

- B. A telescopic chute must be in use on the transfer of limestone from the stackout conveyor to the active limestone stockout pile (TP-4) at all times when any equipment associated with this transfer point is in operation. The telescopic chute shall be operated and maintained in accordance with manufacturer's specifications.

Page No.	3
Permit No.	
Project No.	2006-07-040

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

- C. Bin vent filters must be in use on the limestone day silos (EP-21 & EP-22) at all times when any equipment associated with the day silos are in operation. The bin vent filters shall be operated and maintained in accordance with manufacturer's specifications.
2. Pavement of Haul Road
 - A. Ameren UE Sioux Plant shall pave the delivery haul road with materials such as asphalt, concrete, and/or other materials(s). The pavement will be applied in accordance with industry standards. The paving shall be completed prior to the startup of the new limestone material handling system.
 - B. Maintenance and/or repair of the surfaces will be conducted as necessary to ensure that the physical integrity of the pavement is adequate to achieve control of fugitive emissions from these areas while the plant is operating.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW

Project Number: 2006-07-040
Installation ID Number: 183-0001
Permit Number:

AmerenUE Sioux Plant
8501 North State Route 94
West Alton, MO 63386

Complete: July 17, 2006

Parent Company:
Ameren Corporation
1901 Chouteau Avenue
St. Louis, MO 63103

St. Charles County, S17, T48N, R6E

REVIEW SUMMARY

- AmerenUE Sioux Plant has applied for authority to construct a wet flue gas desulfurization system, limestone material handling system, and a new effluent stack.
- Hazardous Air Pollutant (HAP) emissions are not expected to increase due to the addition of the proposed equipment.
- 40 CFR Part 60, Subpart OOO, *Standards of Performance for Nonmetallic Mineral Processing Plants*, applies to the limestone handling system.
- The National Emission Standards for Hazardous Air Pollutants (NESHAPs) and currently promulgated Maximum Achievable Control Technology (MACT) regulations do not apply to the proposed equipment.
- A wet limestone, forced-oxidation flue gas desulfurization system is being used to control primarily the sulfur oxides (SO_x). Emissions of particulate matter of less than 10 microns in diameter (PM₁₀) from the existing boilers (Units 1 and 2) will also be reduced as a result of the project. Fog type dust suppression is being used to control PM₁₀ emissions at transfer points listed in Table 1 in the limestone handling facility. A telescopic chute is being used to control PM₁₀ emissions on transfer of limestone from the stackout conveyor to the active limestone stockout pile. Bin vent filters are being used to control PM₁₀ emissions from the limestone day silos and the delivery haul road will be paved.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM₁₀ are below de minimis levels.
- This installation is located in St. Charles County, a nonattainment area for ozone

(O₃) and emissions of particulate matter of less than 2.5 microns in diameter (PM_{2.5}) and an attainment area for all other criteria air pollutants.

- This installation is on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2, Number 26 – *Fossil-fuel fired steam electric plants of more than 250 million British thermal units per hour heat input*].
- Ambient air quality modeling was not performed since potential emissions of the application are below de minimis levels.
- Emissions testing may be required for the equipment of this project as per 40 CFR Part 60, Subpart OOO, *Standards of Performance for Nonmetallic Mineral Processing Plants*.
- An off-permit change to the installation's Part 70 Operating Permit application is required within 1 year of equipment startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

AmerenUE Sioux Plant operates an installation for the production of electrical power that is located in West Alton, Missouri (St. Charles County). The installation is considered an existing major source of air pollutants (Part 70 for operating permits) and is also subject to the requirements of Title IV, Acid Rain provisions. A Part 70 operating permit was issued on February 13, 2001 (Permit Number OP2001-012). This operating permit has been amended several times. The latest amendment was approved on March 11, 2005. A Part 70 Operating Permit renewal was received by the Air Pollution Control Program on August 11, 2005.

The installation burns a blend of bituminous coal(s), tire derived fuel (TDF), petroleum coke and No. 1/No. 2 fuel oil in their two (2) cyclone boilers (ID No.'s: B-1 & B-2) to generate electricity. In addition, the installation has an auxiliary boiler (ID No.: B-3) that burns No. 1/No. 2 fuel oil and three diesel-fired generators (ID NO.: B-5, B-6, & B-7). Other sources of air emissions occur from the storage, handling and transfer of coal(s) and diesel storage tanks at the installation.

The following permits have been issued to AmerenUE Sioux Plant from the Air Pollution Control Program.

Table 2: Previously Issued Permits to AmerenUE Sioux Plant

Permit Number	Description
032004-021	A Section (5) permit issued on March 15, 2004 for the addition of three 23.58 MMBtu per hour diesel generators and three diesel fuel storage tanks.
012001-024	A Section (5) permit issued on January 26, 2001 for the addition of an unloading and conveying system to receive and transport materials (mainly solid fuels) from the Mississippi River to the existing plant systems.
183-0001-124	A Phase II Acid Rain Operating Permit for NO _x issued on January 22, 1999.
1198-011	A Section (5) permit issued on November 11, 1998, for approval to burn an alternative fuel (up to 15% by weight blend of petroleum coke).
183-0001-021	A Phase II Acid Rain Operating Permit for SO _x issued on February 9, 1998.
0695-016	A Section (5) permit issued on April 20, 1995 to replace a 162 Million BTU per hour boiler burning #2 distillate fuel and a 200,000 gallon fixed roof storage tank.
0993-006	A Section (5) permit issued on September 22, 1993, for approval to burn a new fuel mix (up to a 10% blend of tire derived fuel) and to add the material handling systems for this new type of fuel.
0579-014 and 0579-015	A Section (8) permit issued on May 6, 1979 for the construction of a oil fired combustion turbine and 600,000 gallon storage tank for No. 2 distillate oil at the existing installation.

PROJECT DESCRIPTION

Ameren UE Sioux Plant is seeking authority to construct a new wet flue gas desulfurization (FGD) scrubber system, limestone material handling system, and a new effluent stack for the Sioux Power Plant in West Alton, Missouri. The new wet scrubber system will consist of two modules – one for each boiler (Units 1 and 2). A reactant preparation system for supplying a limestone slurry to the scrubber system will be also added. It will include two wet limestone ball mills and associated equipment as well as limestone unloading, storage and handling systems, including a truck unloading hopper, storage piles and conveyors. In addition, a gypsum slurry waste handling system and new 496 foot stack will be constructed.

The new wet scrubber system will significantly reduce sulfur dioxide (SO₂) emissions from current levels at the Sioux Plant. The limestone slurry will be sprayed into the absorber vessels where it will react with SO₂ in the flue gas and oxidation air to form gypsum. The gypsum slurry will be bled from the absorber vessels and pumped to a proposed utility waste landfill for disposal. The expected average reductions for SO₂ using the scrubber system is 96% with a minimum removal efficiency of 91%. For the design coal with 4 pounds of SO₂ per million Btu (mmBtu) of heat content, the expected average emission rate is 0.16 pound per mmBtu and the expected maximum emission rate is 0.36 pound per mmBtu. The proposed wet FGD system is also expected to achieve significant reductions in PM₁₀ emissions, SO₃ emissions, and the emissions of acid gases. No increase in emissions including condensible particulate matter emissions are expected from the addition of the new scrubber system. Please note that the expected emissions from wet FGD system does not have any enforceable pollutant limitations. Table 2 shows the expected emissions from the wet FGD system. This excludes the increase in emissions attributed to the limestone handling systems.

Table 3: Potential Emission Change With Addition of Wet Scrubber System

Pollutant	SO ₂	PM ₁₀	CO*	NO _x *
Potential Emissions Change (tpy)	(108,522)	(1,077)	0	0

*CO = Carbon Monoxide, NO_x = Nitrogen Oxides

An increase in PM₁₀ emissions is expected from the addition of the limestone material handling system. The maximum hourly design rate (MHDR) of the limestone handling equipment is 400 tons per hour. Fog type dust suppression, bin vent filters, and a telescopic chute will be used to control PM₁₀ emissions at multiple transfer points in the system. The capacity of the proposed limestone handling equipment is generally designed around the concept of receiving limestone for 8 hours per day, 5 days per week, to supply operation of the scrubbers for 24 hours per day, 7 days per week. The maximum limestone consumption is 40 tons per hour for two wet scrubber units operating at full load. This equates to annual limestone throughput of 350,000 tons per year. The wet FGD system serves as a bottleneck for limestone usage. Therefore, the potential emissions for the active limestone storage pile and the delivery haul road are based on annual limestone throughput of 350,000 tons. The inactive storage pile is based on 50,000 annual limestone throughput.

Currently, the flue gas from the two existing boilers is emitted from two existing stacks. This project will include construction of a single new stack with two internal flues that will each emit flue gas from one of the two units. The height of the new stack will be 496.5 feet high which meets Good Engineering Practice stack height requirements

EMISSIONS/CONTROLS EVALUATION

The only increase in emissions for this application are those associated with the limestone handling system. The pollutant of concern is PM₁₀. The emission factors used in the limestone handling system were obtained from the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 11.19.2, *Crushed Stone Processing* (8/2004). The fog type dust suppression at the transfer points will have a PM₁₀ control efficiency of 50% at TP-1 which is not enclosed and 75% for all other enclosed transfer points. Use of the telescopic chute at TP-4 and the bin vent filters on EP-21 & EP-22 will achieve a 50% and 95% PM₁₀ control efficiency, respectively. PM₁₀ emission factors for the load in to and load out from the storage pile were estimated using an empirical formula from AP-42 Section 13.2.4, *Aggregate Handling and Storage Piles* (1/95). The wind erosion PM₁₀ emission factor is from current Air Pollution Control Program guidance on storage piles. The PM₁₀ emission factor for vehicular activity around the storage pile was obtained from the Noyes Data Corp. book, Orlemann, et al.1983, *Fugitive Dust Control*. Potential emissions of PM₁₀ from the haul roads were estimated from AP-42, Section 13.2.2, *Unpaved Roads* (12/03). A 90% control efficiency was applied due to the paving of the road.

The following table provides an emissions summary for this project. Existing potential emissions were taken from Permit Number 032004-021. Existing actual emissions were taken from the installation's 2005 Emission Inventory Questionnaire (EIQ). Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year).

Table 4: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (2005 EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM ₁₀	15.0	Major	69.0	12.9	N/A
SOx	40.0	Major	51,269.2	N/A	N/A
NOx	40.0	Major	8,560.0	N/A	N/A
VOC	40.0	Major	188.2	N/A	N/A
CO	100.0	Major	860.1	N/A	N/A
Lead	0.6	Major	10.3	N/A	N/A
HAPs	10.0/25.0	Major	706.1	N/A	N/A

N/A = Not Applicable; N/D = Not Determined

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM₁₀ are conditioned to below de minimis levels.

APPLICABLE REQUIREMENTS

AmerenUE Sioux Plant shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved. For a complete list of applicable requirements for your installation, please consult your operating permit.

GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required April 1 for the previous year's emissions.
- *Operating Permits*, 10 CSR 10-6.065

- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-3.090

SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400
- *New Source Performance Regulations*, 10 CSR 10-6.070 – *New Source Performance Standards (NSPS) for Nonmetallic Mineral Processing Plants*, 40 CFR Part 60, Subpart OOO
- *Restriction of Emission of Sulfur Compounds*, 10 CSR 10-6.260

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

Susan Heckenkamp
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated July 17, 2006, received July 17, 2006, designating Ameren Corporation as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Saint Louis Regional Office Site Survey, dated July 28, 2006.

Mr. Steven C. Whitworth
Supervisor/Environmental Scientist
Ameren Corporation
1901 Chouteau Avenue, MC-602
St. Louis, MO 63103

RE: New Source Review Permit - Project Number: 2006-07-040

Dear Mr. Whitworth:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions, if any, on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri. Operation in accordance with these conditions, your new source review permit application and with your operating permit is necessary for continued compliance.

The installation of this equipment qualifies as an off-permit change for you Part70 Operating Permit. As specified in 10 CSR 10-6.065 paragraph (6)(C)9.B, an off permit change requires "written notice of the change to the permitting authority and to the administrator." In order to fulfill the notification requirement to the administrator, please send a written notice to Tamara Freeman, Environmental Protection Agency Region VII, 901 N. 5th Street, Kansas City, KS 66101. As detailed in 10 CSR 10-6.065 paragraph (6)(C)9.B, "...the written notice shall describe each change, including the date, any change in emissions, pollutants emitted and any applicable requirement that would apply as a result of the change." Please send this notification at least 30 but not more than 60 days prior to anticipated start up of this air contaminant source.

If you have any questions regarding this permit, please do not hesitate to contact me at (573) 751-4817, or you may write to me at the Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale
New Source Review Unit Chief

KBH:shl

Enclosures

c: Saint Louis Regional Office
PAMS File 2006-07-040
Permit Number: